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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/849,089

05/04/2001

Geert Arnout Awater

5-13

9414

7590

08/25/2004

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EXAMINER

DAVIS, TEMICA M

ART UNIT

PAPER NUMBER

2681

15

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/849,089

Applicant(s)

AWATER ET AL.

Examiner

Temica M. Davis

Art Unit

2681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 9 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 4/30/2004 have been fully considered but they are not persuasive.

Applicant argues that Raleigh fails to disclose a signal processing unit storing information about transfer functions of RF signals from each of the antennas of the first sets to each of the antennas of the second sets and or/vice versa.

The examiner, however, disagrees. Raleigh discloses a signal-processing unit (page 18, lines 10-23) which performs DFT and spatial operations on a received/transmitted signal. Raleigh further discloses wherein the signal-processing unit computes spatio-temporal downlink and uplink information in order to perform beamforming (page 19, lines 6-13).

The spatio-temporal information reads on the transfer function information claimed. The examiner would like to point out that the claim language does not specifically claim "storing" such information in the signal-processing unit, but rather discloses the signal-processing unit comprising such information. Therefore the calculation of the information as shown in Raleigh reads on the presently claimed invention.

Based on the above remarks, the rejection stands as set forth below.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Raleigh et al (Raleigh), WO 98/09381.

Regarding claim 1, Raleigh discloses a wireless radiofrequency data communication system (abstract, lines 1-4) comprising: a base-station comprising multiple first sets and a signal processing-unit (page 18, lines 10-14) wherein each first set comprises a transmitter- and receiver unit provided with a transmitter and a receiver and at least one antenna which is connected to the transmitter- and receiver-unit (Figure 7, element B, note B is the base station, wherein the signal processing-unit is connected with each of the first sets for processing signals received by the first sets and processing signals to be transmitted by the first sets (Figure 7), and multiple second sets (Figure 7, element S, note S is the subscriber's mobile, see also Figure 6A and 6B), wherein each second set comprises a transmitter- and receiver-unit provided with a transmitter and a receiver and at least one antenna which is connected to the transmitter- and receiver-unit (S in figure 6A, note it is inherent that a mobile station has transmitter and receiver connected to at least one antenna), characterized in that, the signal processing-unit comprises information about the transfer-functions of radiofrequency signals from each of the antennas of the first sets to each of the

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antennas of the second sets and/or vice versa, and wherein the transmitters and receivers, both in the first sets and in the second sets, operate on essentially the same radiofrequency or radiofrequency-band, (page 6, lines 14-31, and page 19, lines 6-28) wherein the signal processing-unit processes the signals received by the first sets and processes the signals to be transmitted by the first sets on the basis of said transfer functions such that for each second set of a plurality of the second sets an individual communication channel is formed with the base-station wherein these communication channels are generated simultaneously and separately from each other (Abstract, see also .page 12, lines 6-21)

Regarding claim 2, Raleigh further discloses the communication channels are duplex communication channels (page 10, 1-12, note "distinct downlink signals and distinct uplink signals" reads on "duplex communications channels", see also Figures 5A and 5B ).

Regarding claim 3, Raleigh further discloses the number of first sets is  $N$  and, in use, the number of second sets is  $M$ , wherein  $N$  is greater than  $M$ , wherein the signal processing-unit is provided with an input port for inputting  $M$  signals to be received by the respective  $M$  second sets, wherein the processing unit is arranged to process the  $M$  signals in combination on the basis of the information of the transfer-functions to obtain  $N$  transmit-signals which are fed to the respective  $N$  first sets for being transmitted by the first sets to the second sets and wherein the processing unit is arranged to process the  $M$  signals in combination in such a way that the  $M$  signals are received separately by the respective  $M$  second sets if the second sets each receive the  $N$  transmit signals,

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thereby establishing M of said simultaneous communication channels (page 10, lines 1-10, and claim 6).

Regarding claim 5, Raleigh further discloses the number of first sets is N and, in use, the number of second sets is M, wherein N is greater than M, wherein, in use, each of the M second sets transmits a signal so that M signals are transmitted to be received in combination by the first sets wherein the signal processing-unit is arranged to process in combination signals received by each of the first sets on the basis of the information about the transfer-functions to recover the M signals transmitted by the M second sets separately from each other, thereby obtaining M of said simultaneous communication channels (page 10, lines 1-10, and claim 6).

#### ***Allowable Subject Matter***

4. Claims 4, 6-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 8 and 9 are allowed.

#### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temica M. Davis whose telephone number is (703) 306-5837. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

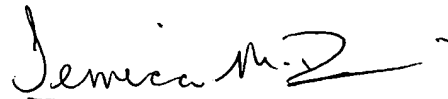
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Temica M. Davis  
Examiner  
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August 23, 2004

  
**TEMICA M. DAVIS**  
**PATENT EXAMINER**